

S/s Concordia

TUE. 11 OCT. 1921

Rpt. 4a.

# REPORT ON MACHINERY.

No. 4731

Received at London Office

SAT. 22 JAN. 1922

Date of writing Report 10 When handed in at Local Office 28 Jan 1921 Port of MANCHESTER

No. in Survey held at MANCHESTER Date, First Survey 5 July 1918 Last Survey 22 Dec 1920

Reg. Book. on the STEAM TURBINES and DOUBLE REDUCTION GEAR for N type STANDARD VESSEL (Number of Visits 21.)

Tons { Gross  
Net

Master TURBINES Built at CHEPSTOW By whom built MONMOUTH & CO. When built

Engines made at MANCHESTER By whom made METROPOLITAN-VICKERS E.C. L. when made 1920.

Boilers made at HUDDERSFIELD By whom made DAVID BROWN & SONS L. when made

Registered Horse Power 2300 Owners Port belonging to

Shaft Horse Power at Full Power 2900 Is Refrigerating Machinery fitted for cargo purposes Is Electric Light fitted

TURBINE ENGINES, &c.—Description of Engines RATEAU TURBINES + D.R. GEAR No. of Turbines 2.

Diameter of Rotor Shaft Journals, H.P. 4 1/2 L.P. 4 1/2 Diameter of Pinion Shaft 1 1/2 4 1/2 2 1/2 9"

Diameter of Journals 1 1/2 2 1/2 9" Distances between Centres of Bearings 27 2 1/2 46 1/2 Diameter of Pitch Circle 6 3/2 13 3/9"

Diameter of Wheel Shaft 9 2 1/4 4 Distance between Centres of Bearings 26 2 1/2 45 1/2 Diameter of Pitch Circle of Wheel 49 6/56 2 76 7/65"

Width of Face 18 2 1/2 33 1/2 Diameter of Thrust Shaft under Collars 15 Diameter of Tunnel Shaft as per rule as fitted

No. of Screw Shafts Diameter of same as per rule as fitted Diameter of Propeller Pitch of Propeller

No. of Blades State whether Moveable Total Surface Diameter of Rotor Drum, H.P. L.P. astern

Thickness at Bottom of Groove, H.P. L.P. Astern Revs. per Minute at Full Power, Turbine Propeller

## PARTICULARS OF BLADING.

	H. P.			L. P.			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST Expansion	5 1/8 + 1 1/8	3 2 1/2 + 3 3 3/4	2	1 3/8	3 3 3/8	1	1 1/6 + 2 1/4	3 2 1/6 + 3 3 3/4	2
2ND "	3/8	3 2 3/8	1	1 3/8	3 3 3/8	1			
3RD "	1"	3 3"	1	2 1/2	3 4 1/2	1			
4TH "	1 5/8	3 2 5/8	1	3 1/6	3 5 1/6	1			
5TH "	1 1/8	3 3 1/8	1	4 1/4	3 6 1/4	1	2 1/6	3 4 1/6	1
6TH "				6 1/2	3 8 1/2	1	4"	3 6"	1
7TH "				7"	3 9"	1			
8TH "									

No. and size of Feed pumps

No. and size of Bilge pumps

No. and size of Bilge suction in Engine Room

In Holds, &c.

No. of Bilge Injections sizes Connected to condenser, or to circulating pump Is a separate Donkey Suction fitted in Engine Room & size

Are all the bilge suction pipes fitted with roses Are the roses in Engine room always accessible

Are all connections with the sea direct on the skin of the ship Are they Valves or Cocks

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Discharge Pipes above or below the deep water line

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate

What pipes are carried through the bunkers How are they protected

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges

Is the Screw Shaft Tunnel watertight Is it fitted with a watertight door worked from

## OILERS, &c.—(Letter for record)

Manufacturers of Steel

Total Heating Surface of Boilers Is Forced Draft fitted No. and Description of Boilers

Working Pressure Tested by hydraulic pressure to Date of test No. of Certificate

Can each boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to

each boiler Area of each valve Pressure to which they are adjusted Are they fitted with easing gear

Smallest distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers Length Material of shell plates

Thickness Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams

ong. seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps

Per centages of strength of longitudinal joint plates Working pressure of shell by rules Size of manhole in shell

Size of compensating ring No. and Description of Furnaces in each Boiler Material Outside diameter

Length of plain part top crown Thickness of plates Description of longitudinal joint No. of strengthening rings

bottom bottom

Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom

Pitch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules

Material of stays Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space

Material Thickness Pitch of stays How are stays secured Working pressure by rules Material of stays

Diameter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom

Thickness Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules

Diameter of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays

Pitch across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and

Thickness of girder at centre Length as per rule Distance apart Number and pitch of stays in each

Working pressure by rules Steam dome: description of joint to shell 1/10 of strength of joint Diameter

Thickness of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets

Working pressure of shell by rules Crown plates: Thickness How stayed



SUPERHEATER. Type

Date of Approval of Plan

Tested by Hydraulic Pressure to

Date of Test

Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler

Diameter of Safety Valve

Pressure to which each is adjusted

Is Easing Gear fitted

IS A DONKEY BOILER FITTED?

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:-

for turbines:- two bearing bushes for turbine spindles, four diaphragm packing rings, gland casing for spindles, one thrust shaft bearing, assorted bolts and nuts, assorted spanners &c. wear down gauges.

In D.R. GEAR:- 2 bearing bushes for slow speed wheel shaft, 2 bearing bushes for slow speed pinion shaft, 2 bearing bushes for high speed wheel shaft, 2 bearing bushes for high speed pinion shaft, while installing fixtures for bearings, wear down gauges, assorted bolts and nuts, overhauling gear.

The foregoing is a correct description,

METROPOLITAN-VICKERS ELECTRICAL CO. LTD.

Simpson Manufacturer.  
Ing D.O.

DAVID BROWN & SONS, (HEDDLE) LTD.,

Percey Brown Director.

Dates of Survey while building	During progress of work in shops - -	During erection on board vessel - - -	Total No. of visits
	5.11.17.24 July, 28 Aug, 3.9.20.30 Sept, 5 Oct, 11.29 Nov, 10.24 Dec.	6 Jan, 20.27 Feb	10 Mar, 5 Aug 13 Dec, 23 Dec (21 visits)

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts-Casings 6 Oct. 1918 Rotors 24 Dec. 1918 Blading 3 Sept. 1918 Gearing Mar 1920.

Rotor shaft 24 Dec. 1918 Thrust shaft Tunnel shafts Screw shaft Propeller

Stern tube Steam pipes tested Engine and boiler seatings Engines holding down bolts

Completion of pumping arrangements Boilers fired Engines tried under steam

Main boiler safety valves adjusted Thickness of adjusting washers

Material and tensile strength of Rotor shaft forged steel 33.7 tons and 32.7 tons Identification Mark on Do. U476 + U492

Material and tensile strength of Pinion shaft nickel steel 55.88 tons and 64.6 tons Identification Mark on Do. 5320 + 5287

Material of Wheel shaft O.K. forged steel Identification Mark on Do. 324. Material of Thrust shaft See Brown report. Identification Mark on Do.

Material of Tunnel shafts Identification Marks on Do. Material of Screw shafts Identification Marks on Do.

Material of Steam Pipes Test pressure

Is an installation fitted for burning oil fuel

Is the flash point of the oil to be used over 150°F.

Have the requirements of Section 49 of the Rules been complied with

Is this machinery a duplicate of a previous case Yes If so, state name of vessel Standard N1 type.

General Remarks (State quality of workmanship, opinions as to class, &c.)

These Steam turbines and double reduction gear have been built under special survey and the materials tested in accordance with the Rules of this Society. The materials and workmanship so far as can be seen are sound and good and eligible in my opinion to be classed with record of L.M.C. Mark on coupling of main shaft

LLOYDS  
N<sup>o</sup> 113  
10-1920  
A.C.

The amount of Entry Fee	When applied for
Special	19
Donkey Boiler Fee	19
Travelling Expenses (if any)	19

A. Campbell  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE. 18 OCT. 1921

Assigned



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